

Claims

1. A method of removing a portion of a surface by producing a beam of laser light and irradiating a surface location with the laser light, characterised by using mask means to remove a low power density part of the laser beam that is below a threshold power density for surface removal before irradiating the surface location.
2. A method of treating a surface according to claim 1 wherein that part of the laser beam below the threshold power density is removed by being obscured by a shadow mask.
3. A method of treating a surface according to claim 2 wherein the shadow mask adsorbs substantially all of that part of the laser beam that is below the threshold power density.
4. A method of treating a surface according claim 1 wherein that part of the laser beam below the threshold power density is removed by a reflective mask such that light incident upon the mask is reflected by the mask.
5. A method of treating a surface according to claim 4 wherein the reflection redirects low power density laser light to another low power density portion of the laser beam so as to create an additional high power density portion of the laser beam.

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6. A method according to any preceding claim wherein the surface is a concrete surface contaminated with radionuclides
- 5 7. A method according to any preceding claim wherein the surface portion is removed by the effects of thermal shock.
- 10 8. An apparatus for removing a portion of a surface by irradiation with laser light, the apparatus comprising a laser source for producing a laser beam for irradiating a surface location, characterised in that mask means is provided to remove a lower power density part of the laser beam.
- 15 9. An apparatus according to claim 8 wherein the mask means comprises a shadow mask to adsorb 'low intensity' radiation.
- 20 10. An apparatus according to claim 8 wherein the mask means comprises a reflective mask to redirect at least a part of the 'low intensity' portion of the radiation.
- 25 11. An apparatus according to any one claims 8, 9 or 10 wherein the mask is provided with an aperture such that a high power density part of a laser beam passes through the aperture.
- 30 12. An apparatus according to any of claims 8 to 11 wherein the mask is tubular.

13. An apparatus according to any of claims 8 to 11 wherein the mask comprises a metal or a ceramic.
14. An apparatus according to any of claims 8 to 13 wherein
5 the mask means is coated.
15. An apparatus according to claim 14 wherein the coating is a light adsorbing coating.
- 10 16. An apparatus according to claim 14 wherein the coating is a reflective coating.
- 15 17. A method of treating a surface for the removal of a surface portion substantially as hereinbefore described with reference to the accompanying description and any one of drawings 4, 5, 6, 7 and 8.
- 20 18. An apparatus for treating a surface for the removal of a surface portion substantially as hereinbefore described with reference to the accompanying description and any one of drawings 4, 5, 6, 7 and 8.